


Permit Application Review Checklist

Part (1) Application Receipt and Registration *To be completed by the Permit Clerk*	
Facility Name: COULEE DAM / HYDRO-ELECTRIC FACILTY	
Permit Number WA0026867	
Date Reminder Letter Sent for Additional Information:	NEW PERMIT
Date of Postmark on Application Submittal :	September 26, 2017
Date Application is Received in OWW: Note: <u>Application transmittal letter and the first three pages of the application are to be copied.</u> The original transmittal letter, the first three pages of the application, and the envelope /package /email it was received in or attached to, are to be filed in the permit file (For bulky mailing packages, it will suffice to cut out the portion of the mailing label with the address and postmarked date.) If no file exists, a file is to be created. The copied version of the transmittal letter and the copied version of the first three pages of the application along with the rest of the original application and this check-list are to be routed.	OCTOBER 2, 2017

Date application package and Checklist are routed to Review Coordinator:	OCTOBER 2, 2017
Date Application Information logged into E-database:	OCTOBER 2, 2017
Permit Clerk Sign off & Date:	
 Audrey Washington	October 2, 2017
Part (2) Application Review for Timeliness & Completeness *To be completed by Review Coordinator*	
Permit Writer of the Month (name):	
MAXWELL DRU	
A. If Application is determined to be Timely and Complete:	
1) Date Determination letter sent to Applicant:	10/12/17
2) Go to C. below	
B. If Application is determined to be Incomplete:	

1. Date Incomplete letter sent to Applicant:	
2. Date additional information is due to R10:	
3. Date additional information is received:	
4. Date Application is determined complete:	
5. Date Timely & Complete letter sent to Applicant:	
6. Go to C below	
C. Check for Industrial Storm water: 1. Is the facility an Industrial Facility? 2. A municipal discharger discharging greater than 1 MGD? Or 3. Has a required pretreatment program? If yes, check Industrial E-NOI Database to see if the facility has a MSGP. http://cfpub.epa.gov/npdes/stormwater/noi/noisearch.cfm 4. If facility does have a MSGP, include Note for Permit writer in the Comment Section (below) to alerting them to coordinate with Margaret McCauley on opportunities to consolidate the permits. <i>NONE</i> ----- 5. Go to E	
D. If Application is submitted after the expiration date: 1. Date expiration letter sent to Applicant 2. Go to E below	
E. Date package is routed to NCU Database Manager: (Note: NCU Database Manager is to receive copies of <u>all</u> correspondence along with application and this checklist)	10/12/17
Application Information logged into E-database	10/12/17
Review Coordinator Sign off and Date	10/12/17
Part (3) ICIS/PCS Database Entry *To be completed by NCU Database Manager*	
Date NCU Database Manager receives permit application package:	10/12/17
Date NCU Database Manager gives application to Data Entry Staff:	10/12/17

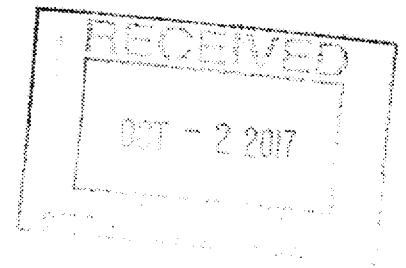
Data-entry Staff (name):	Jason Rodriguez
Date permit information is entered into ICIS/PCS:	10/16/17
Date permit information is returned to NCU Database Manager:	10/16/17
Date application, letters and this Checklist are routed to Permit Clerk:	10/16/17
Date Application Information logged into E-database:	10/16/17
NCU Database Manager Sign off & Date	<i>[Signature]</i> 10/16/17
<u>Part (4) Final Filing of Application in Permit File</u> *To be completed by Permit Clerk*	
Date Application, letters and checklist are filed in Permit File:	
Date final information on application review process entered into E-database:	
Permit Clerk Sign off & Date:	
Comment Section: 	

RECLAMATION

Managing Water in the West

NPDES Application Form

EPA Region 10 National Pollution Discharge Elimination System (NPDES) Application for US Bureau of Reclamation Grand Coulee Dam WA



U.S. Department of the Interior
Bureau of Reclamation

September 2017

ED_004421A_00653510-00004

FORM 1 GENERAL		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)		I. EPA I.D. NUMBER	
I. EPA I.D. NUMBER		III. FACILITY NAME		F 110039923223	
V. FACILITY MAILING ADDRESS		VI. FACILITY LOCATION		1 2 13 14 15	
II. POLLUTANT CHARACTERISTICS		INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.		GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.	
SPECIFIC QUESTIONS		SPECIFIC QUESTIONS		SPECIFIC QUESTIONS	
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)	
III. NAME OF FACILITY		IV. FACILITY CONTACT		V. FACILITY MAILING ADDRESS	
1 SKIP Grand Coulee Dam, USBR		A. NAME & TITLE (last, first, & title) 2 Jeffery DeWinkler		B. PHONE (area code & no.) (509) 633-9321	
A. STREET OR P.O. BOX 3 P.O. Box 620		B. CITY OR TOWN 4 Grand Coulee		C. STATE WA	
D. ZIP CODE 99133		E. ZIP CODE 99133		F. COUNTY CODE (if known)	
VI. FACILITY LOCATION		A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER 5 HWY 155 Industrial Rd Warehouse B46		B. COUNTY NAME Grant	
C. CITY OR TOWN 6 Grand Coulee		D. STATE WA		E. ZIP CODE 99133	
F. COUNTY CODE (if known)		G. COUNTY CODE (if known)		H. COUNTY CODE (if known)	

VII. SIC CODES (4-digit, in order of priority)

VIII. OPERATOR INFORMATION

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box: if "Other," specify.)		D. PHONE (area code & no.)
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F. CITY OR TOWN				G. STATE	H. ZIP CODE	I. INDIAN LAND
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X. EXISTING ENVIRONMENTAL PERMITS	
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[illegible][illegible]

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the

location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)		
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Grand Coulee Dam is a hydroelectric facility that provides the following services on the river; Generate electricity from hydro electric generators, minimize environmental impact to flood conditions by controlling water levels in dam pool, and provide irrigation water to the Columbia Basin Project.

NEW CERTIFICATION: www.pearsoncmg.com

XIII. CERTIFICATION (see instructions)

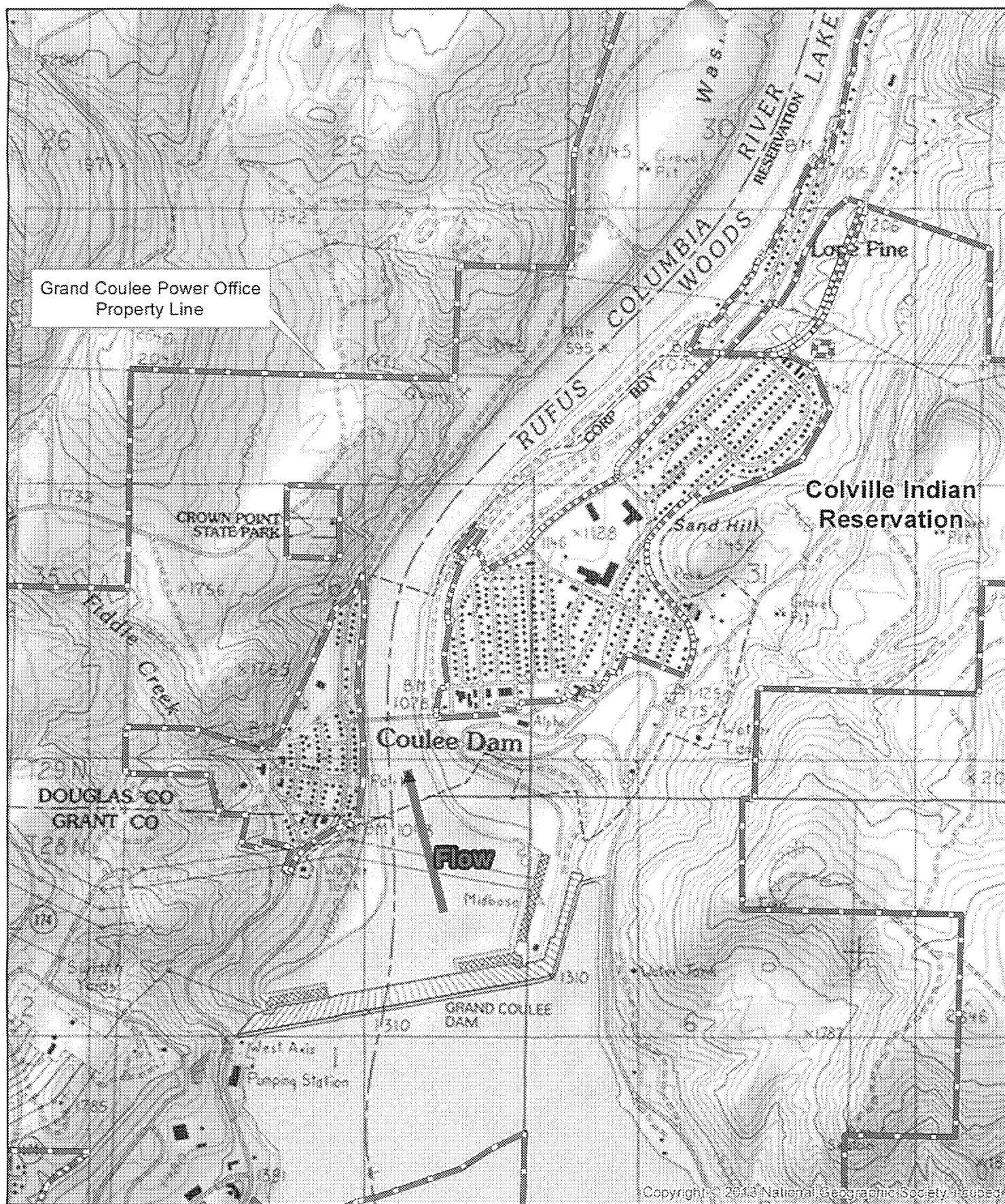
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my

I certify under penalty of law that I have personally examined the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

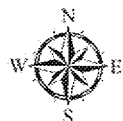
A. NAME & OFFICIAL TITLE (<i>type or print</i>) Coleman Smith Grand Coulee Power Manager	B. SIGNATURE 	C. DATE SIGNED 25 SEP 17
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COMMENTS FOR OFFICIAL USE ONLY			
c			

C	
15	18



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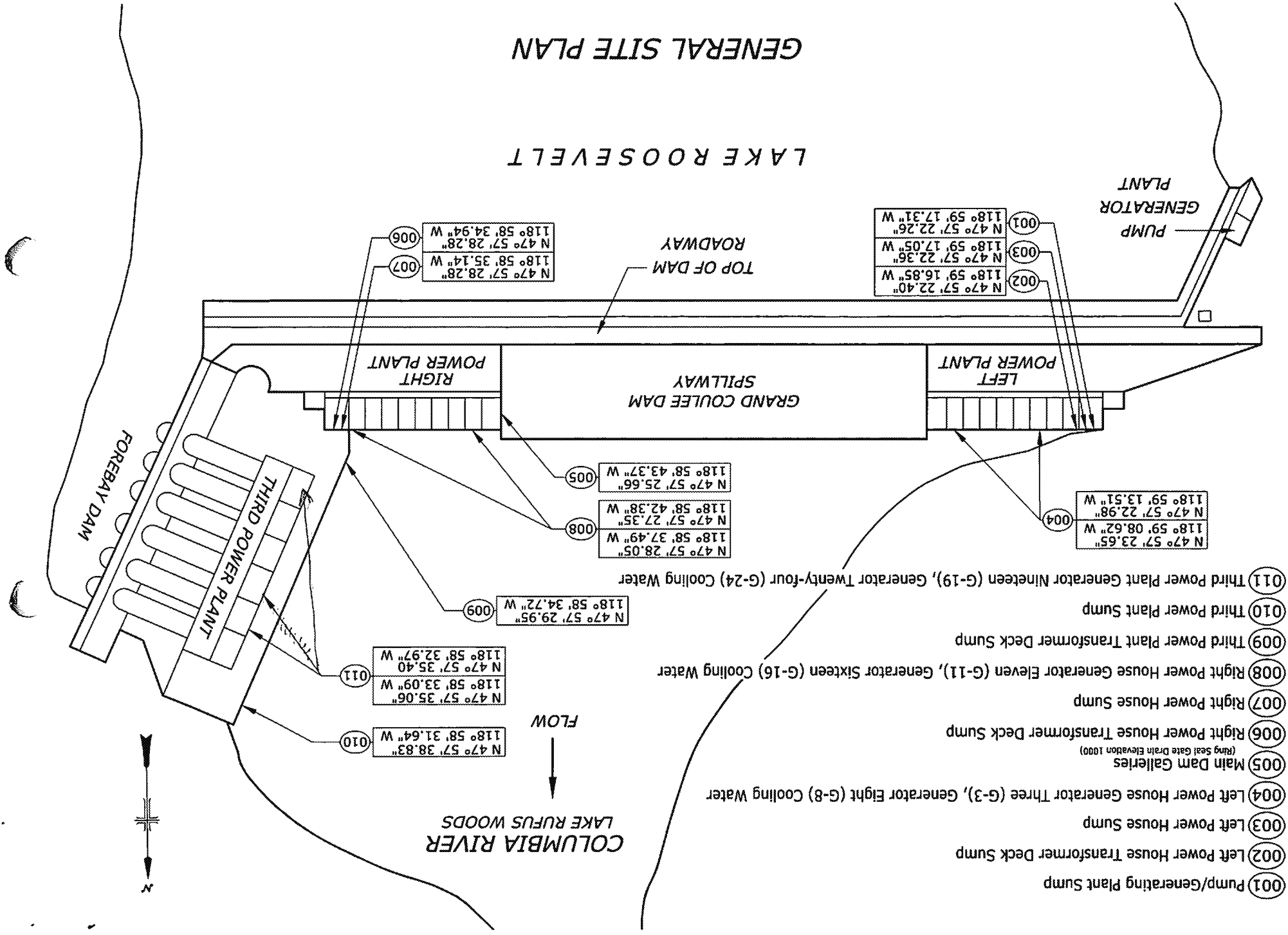


Grand Coulee Dam Vicinity

0 0.125 0.25 0.5 0.75 1 Miles

GENERAL SITE PLAN

LAKE ROOSEVELT



Please print or type in the unshaded areas only.		EPA ID Number (copy from Item 1 of Form 1)		Approved. OMB No. 2040-0086. Approval expires 5-31-92.			
FORM 2E NPDES		Facilities Which Do Not Discharge Process Wastewater					
I. RECEIVING WATERS							
For this outfall, list the latitude and longitude, and name of the receiving water(s).							
Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
001	47.00	57.00	22.00	118.00	59.00	17.00	Columbia River
II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)							
01/01/1951							
III. TYPE OF WASTE							
A. Check the box(es) indicating the general type(s) of wastes discharged.							
<input type="checkbox"/> Sanitary Wastes <input type="checkbox"/> Restaurant or Cafeteria Wastes <input type="checkbox"/> Noncontact Cooling Water <input checked="" type="checkbox"/> Other Nonprocess Wastewater (Identify)							
B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.							
N/A							
IV. EFFLUENT CHARACTERISTICS							
A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).							
B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).							
Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)	Source of Estimate (if new discharger)	
Biochemical Oxygen Demand (BOD)	4.7 lbs/day	0.032 mg/L			1.00		
Total Suspended Solids (TSS)	0.0 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	0.0 lbs/day	<1 per 100ml			1.00		
Total Residual Chlorine (if chlorine is used)	0.06 lbs/day	<0.0 mg/L			1.00		
Oil and Grease	0.0 lbs/day	<4.3 mg/L			1.00		
*Chemical oxygen demand (COD)	0.0 lbs/day	<20 mg/L			1.00		
*Total organic carbon (TOC)	2.4 lbs/day	0.017 mg/L			1.00		
Ammonia (as N)	0.11 lbs/day	0.001 mg/L			1.00		
Discharge Flow	Value 17.39 MGD		8.7 MGD		1.00		
pH (give range)	Value 7.25				1.00		
Temperature (Winter)	17.10 °C		°C		1.00		
Temperature (Summer)	°C		°C				
*If noncontact cooling water is discharged							

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?	
If yes, briefly describe the frequency of flow and duration.	<input type="checkbox"/> Yes <input type="checkbox"/> No
The transformers are air cooled. Deluge fire water has only been used during commissioning if required by fire flow would be approximately 2500gpm. There are a total of 12 pump and pump-generating unit each uses 1000 gpm of cooling water. They operate approximately 50.4% of the time, biased to the summer, irrigation season. Drainage discharge is by gravity and the individual pipe subsystems discharge into the inclined portion of the drainage tunnel beyond any safe means of installing a weir to measure total flows.	
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)	
N/A	
VII. OTHER INFORMATION (Optional)	
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.	
Discharge date in Box II is shown as 1/1/1951, however actual day in 1951 discharges began is unknown.	
VIII. CERTIFICATION	
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>	
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501
C. Signature	D. Date Signed

Please print or type in the unshaded areas only.		EPA ID Number (copy from Item 1 of Form 1)		EPA Approved. OMB No. 2040-0086. Approval expires 5-31-92.			
FORM 2E NPDES	Facilities Which Do Not Discharge Process Wastewater						
I. RECEIVING WATERS							
For this outfall, list the latitude and longitude, and name of the receiving water(s).							
Outfall Number (list)	Latitude			Longitude		Receiving Water (name)	
	Deg	Min	Sec	Deg	Min	Sec	
002	47.00	57.00	22.00	118.00	59.00	17.00	Columbia River
II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)							
01/01/1941							
III. TYPE OF WASTE							
A. Check the box(es) indicating the general type(s) of wastes discharged.							
<input type="checkbox"/> Sanitary Wastes <input type="checkbox"/> Restaurant or Cafeteria Wastes <input type="checkbox"/> Noncontact Cooling Water <input checked="" type="checkbox"/> Other Nonprocess Wastewater (Identify)							
B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.							
N/A							
IV. EFFLUENT CHARACTERISTICS							
A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions). B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).							
Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)		Source of Estimate (if new discharger)
Biochemical Oxygen Demand (BOD)	0.0 lbs/day	<2.4 mg/L			1.00		
Total Suspended Solids (TSS)	0.0 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	2.0 lbs/day	0.031 mg/L			1.00		
Total Residual Chlorine (if chlorine is used)	0.03 lbs/day	0.004 mg/L			1.00		
Oil and Grease	0.0 lbs/day	<4.1 mg/L			1.00		
*Chemical oxygen demand (COD)	0.0 lbs/day	<20 mg/L			1.00		
*Total organic carbon (TOC)	1.2 lbs/day	0.018 mg/L			1.00		
Ammonia (as N)	0.19 lbs/day	0.003 mg/L			1.00		
Discharge Flow	Value 7.81 gpm		5.18 MGD		1.00		
pH (give range)	Value 7.52				1.00		
Temperature (Winter)	16.20 °C		°C		1.00		
Temperature (Summer)	°C		°C		0.00		

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Transformer cooling water flows are regulated to 200gpm per transformer bank three transformer per unit and there are nine main units. Flow is constant except for maintenance outages. Deluge fire water has only been used during commissioning if required by fire flow would be approximately 750gpm.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is shown as 1/1/1941, however actual day in 1951 discharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Form Approved, OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
003	47.00	57.00	22.00	118.00	59.00	17.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
01/01/1941

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	6.0 lbs/day	0.250 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.06 lbs/day	.009 mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	1.3 lbs/day	0.054 mg/L			1.00	
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00	
Discharge Flow	Value 2.8 MGD		0.83 MGD		1.00	
pH (give range)	Value 7.66				1.00	
Temperature (Winter)	15.50 °C		°C		1.00	
Temperature (Summer)	°C		°C		0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
This is all the water leakage into the powerhouse including the turbine pit. There are two 1000 gpm pumps to discharge the water. The pumps run approximately 6.4 and 7.5 hours per day respectively.		
VI. TREATMENT SYSTEM <i>(Describe briefly any treatment system(s) used or to be used)</i>		
N/A		
VII. OTHER INFORMATION <i>(Optional)</i>		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is shown as 1/1/1941, however actual day in 1941 discharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Form Approved, OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES**Facilities Which Do Not Discharge Process Wastewater****I. RECEIVING WATERS**

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
004a	47.00	57.00	22.00	118.00	59.00	13.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)

09/28/1941

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	1.0 lbs/day	0.033 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.02 lbs/day	0.001 mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	1.3 lbs/day	0.043 mg/L			1.00	
Ammonia (as N)	0.14 lbs/day	0.005 mg/L			1.00	
Discharge Flow	Value 3.6 MGD				1.00	
pH (give range)	Value 7.66				1.00	
Temperature (Winter)		17.50 °C		°C	1.00	
Temperature (Summer)		°C		°C	0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?	
If yes, briefly describe the frequency of flow and duration.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Each unit uses a constant cooling water flow rate of approximately 2500 gpm while the unit is in operation. The units typically operated about 62.7% of the time.	
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)	
N/A	
VII. OTHER INFORMATION (Optional)	
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.	
Two units were sampled as representative G-3 and G-8. Data represented here is from G-3 Elevation 968.	
VIII. CERTIFICATION	
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>	
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501
C. Signature	D. Date Signed

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2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
004b	47.00	57.00	22.00	118.00	59.00	13.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
09/28/1941

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (Include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	4.0 lbs/day	0.133 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.04 lbs/day	0.001mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	3.4 lbs/day	0.113 mg/L			1.00	
Ammonia (as N)	0.00 lbs/day	<.10 mg/L			1.00	
Discharge Flow	Value 3.6 MGD				1.00	
pH (give range)	Value 7.69				1.00	
Temperature (Winter)		17.90 °C		°C	1.00	
Temperature (Summer)		°C		°C	0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Each unit uses a constant cooling water flow rate of approximately 2500 gpm while the unit is in operation. The units typically operated about 62.7% of the time.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Two units were sampled as representative G-3 and G-8. Data represented here is from G-8 Elevation 968.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

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Approval expires 5-31-92.FORM
2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (Ifst)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
005	47.00	57.00	25.00	118.00	58.00	43.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
01/01/1941

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)		Source of Estimate (if new discharger)
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00		
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	1.0 lbs/day	0.343 mg/L			1.00		
Total Residual Chlorine (if chlorine is used)	0.02 lbs/day	.007 mg/L			1.00		
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00		
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00		
*Total organic carbon (TOC)	2.2 lbs/day	0.754 mg/L			1.00		
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00		
Discharge Flow	Value 0.35 MGD		0.08 MGD		1.00		
pH (give range)	Value 7.43				1.00		
Temperature (Winter)	11.00 °C		°C		1.00		
Temperature (Summer)	°C		°C		0.00		

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
<p>The construction of the Dam is separated in block sections starting with Block 1 at the West side of LPH and ending at block 120 at the Far East of TPP. Block 64 is the East training wall separating the spill way from the RPH. Seepage and drainage in the Main dam at El. 950 and below, collects in three drainage sumps. The sumps are pumped out periodically by float-control. The discharge from each of these pumps goes into the tailbay, from the Block 64 Training Walls at El. 946.25. All drainage above El. 950 gallery is gravity drained directly through the training walls into the tailway.</p> <p>Gravity drains: block 31 elevation 1150 - 2.68gpm, block 64 elevation 1150 - 9.85gpm, block 64 elevation 1050 - 34.29gpm, block 31 elevation 1050 - 80gpm</p> <p>Pumped drain sumps: block 31- 29gpm, block 53- 1gpm, block 64- 5gpm. Please note the flow fluctuate with activity and time of year.</p>		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is shown as 1/1/1941, however actual day in 1941 discharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Colman Smith	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

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EPA ID Number (copy from Item 1 of Form 1)

Form Approved. OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
006	47.00	57.00	28.00	118.00	58.00	34.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
01/01/1950

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☐ Noncontact Cooling Water ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	4 lbs/day	0.558 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.04 lbs/day	0.006 mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	1.6 lbs/day	0.223 mg/L			1.00	
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00	
Discharge Flow	Value 0.86 MGD				1.00	
pH (give range)	Value 7.57				1.00	
Temperature (Winter)	16.40 °C			°C	1.00	
Temperature (Summer)				°C	0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Transformer cooling water flows are regulated to 200gpm per transformer bank three transformer per unit and there are nine main units. Flow is constant except for maintenance outages. Deluge fire water has only been used during commissioning if required by fire flow would be approximately 750gpm.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is show as 1/1/1950, however actual day in 1950 dicharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

Please print or type in the unshaded areas only.		EPA ID Number (copy from Item 1 of Form 1)		Approved. OMB No. 2040-0086. Approval expires 5-31-92.			
FORM 2E NPDES	Facilities Which Do Not Discharge Process Wastewater						
I. RECEIVING WATERS							
For this outfall, list the latitude and longitude, and name of the receiving water(s).							
Outfall Number (list)	Latitude			Longitude		Receiving Water (name)	
	Deg	Min	Sec	Deg	Min	Sec	Columbia River
007	47.00	57.00	28.00	118.00	58.00	35.00	
II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)						01/01/1950	
III. TYPE OF WASTE							
A. Check the box(es) indicating the general type(s) of wastes discharged.							
<input type="checkbox"/> Sanitary Wastes <input type="checkbox"/> Restaurant or Cafeteria Wastes <input type="checkbox"/> Noncontact Cooling Water <input checked="" type="checkbox"/> Other Nonprocess Wastewater (Identify)							
B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.							
N/A							
IV. EFFLUENT CHARACTERISTICS							
A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions). B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).							
Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)		Source of Estimate (if new discharger)
Biochemical Oxygen Demand (BOD)	4.6 lbs/day	0.192 mg/L			1.00		
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	4.0 lbs/day	0.167 mg/L			1.00		
Total Residual Chlorine (if chlorine is used)	0.12 lbs/day	0.005 mg/L			1.00		
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00		
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00		
*Total organic carbon (TOC)	4 lbs/day	0.167 mg/L			1.00		
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00		
Discharge Flow	Value 2.88 MGD		0.3 MGD		1.00		
pH (give range)	Value 7.73				1.00		
Temperature (Winter)	16.60 °C		°C		1.00		
Temperature (Summer)	°C		°C		0.00		

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? If yes, briefly describe the frequency of flow and duration.		<input type="checkbox"/> Yes <input type="checkbox"/> No
This is all the water leakage into the powerhouse including the turbine pit. There are two 1000 gpm pumps to discharge the water. The pumps run approximately 5 hours per day.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is shown as 1/1/1950, however actual day in 1950 discharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Colman Smith	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

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EPA ID Number (copy from Item 1 of Form 1)

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2E
NPDES**Facilities Which Do Not Discharge Process Wastewater****I. RECEIVING WATERS**

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
008a	47.00	57.00	27.00	118.00	58.00	42.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
07/12/1949**III. TYPE OF WASTE**

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	3.0 lbs/day	0.100 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.02 lbs/day	0.001 mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	3.5 lbs/day	0.117 mg/L			1.00	
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00	
Discharge Flow	Value 3.6 MGD		3.6 MGD		1.00	
pH (give range)	Value 7.65				1.00	
Temperature (Winter)	17.40 °C		°C		1.00	
Temperature (Summer)	°C		°C		0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Each unit uses a constant cooling water flow rate of approximately 2500 gpm while the unit is in operation. The units typically operated about 75.0% of the time.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Two representative samples were taken at G-11 and G-16. Data from G-11 Elev 951 on 6/7/17 was used in this 2E form.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager		B. Phone No. (area code & no.) (509) 633-9501
C. Signature		D. Date Signed

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Approved. OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES**Facilities Which Do Not Discharge Process Wastewater****I. RECEIVING WATERS**

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
008b	47.00	57.00	27.00	118.00	58.00	42.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
07/12/1949**III. TYPE OF WASTE**

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS**A. Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).**B. New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	1.0 lbs/day	0.033 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.05 lbs/day	0.002 mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	0.0 lbs/day	<1.0 mg/L			1.00	
Ammonia (as N)	0.16 lbs/day	0.005 mg/L			1.00	
Discharge Flow	Value 3.6 MGD		3.6 MGD		1.00	
pH (give range)	Value 7.71				1.00	
Temperature (Winter)	15.60 °C		°C		1.00	
Temperature (Summer)	°C		°C		0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Each unit uses a constant cooling water flow rate of approximately 2500 gpm while the unit is in operation. The units typically operated about 75.0% of the time.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Two representative samples were taken at G-11 and G-16. Data from G-16 Elev 951 on 11/14/16 was used in this 2E form.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Approved. OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
009a	47.00	57.00	35.00	118.00	58.00	33.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
08/01/1975

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)		Source of Estimate (if new discharger)
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00		
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	3.0 lbs/day	0.038 mg/L			1.00		
Total Residual Chlorine (if chlorine is used)	0.01 lbs/day	0.0 mg/L			1.00		
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00		
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00		
*Total organic carbon (TOC)	3.3 lbs/day	0.04 mg/L			1.00		
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00		
Discharge Flow	Value 9.36 MGD				1.00		
pH (give range)	Value 7.64				1.00		
Temperature (Winter)		13.40 °C		°C	1.00		
Temperature (Summer)		°C		°C	0.00		

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Transformers are air cooled. Deluge fire water has only been used during commissioning if required by fire flow would be approximately 1800gpm for approximately 20 minutes.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is 1/1/1975, however actual day in 1975 discharge began is unknown. Two representative samples were taken at G-19 and G-24. Data from G-24 Elev 943 on 04/25/17 was used in this 2E form.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

Please print or type in the unshaded areas only.		EPA ID Number (copy from Item 1 of Form 1)		Approved. OMB No. 2040-0086. Approval expires 5-31-92.			
FORM 2E NPDES	Facilities Which Do Not Discharge Process Wastewater						
I. RECEIVING WATERS							
For this outfall, list the latitude and longitude, and name of the receiving water(s).							
Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	Columbia River
009b	47.00	57.00	35.00	118.00	58.00	33.00	
II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)							
08/01/1975							
III. TYPE OF WASTE							
A. Check the box(es) indicating the general type(s) of wastes discharged.							
<input type="checkbox"/> Sanitary Wastes <input type="checkbox"/> Restaurant or Cafeteria Wastes <input type="checkbox"/> Noncontact Cooling Water <input checked="" type="checkbox"/> Other Nonprocess Wastewater (Identify)							
B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.							
N/A							
IV. EFFLUENT CHARACTERISTICS							
A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions). B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).							
Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)	Source of Estimate (if new discharger)	
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00		
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	1.0 lbs/day	0.013 mg/L			1.00		
Total Residual Chlorine (if chlorine is used)	0.00 lbs/day	<0.1 mg/L			1.00		
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00		
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00		
*Total organic carbon (TOC)	3.3 lbs/day	0.04 mg/L			1.00		
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00		
Discharge Flow	Value 9.36 MGD				1.00		
pH (give range)	Value 7.71				1.00		
Temperature (Winter)	13.50 °C			°C	1.00		
Temperature (Summer)				°C	0.00		

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Transformers are air cooled. Deluge fire water has only been used during commissioning if required by fire flow would be approximately 1800gpm for approximately 20 minutes.		
VI. TREATMENT SYSTEM <i>(Describe briefly any treatment system(s) used or to be used)</i>		
N/A		
VII. OTHER INFORMATION <i>(Optional)</i>		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is 1/1/1975, however actual day in 1975 discharge began is unknown. Two representative samples were taken at G-19 and G-24. Data from G-19 Elev 943 on 04/25/17 was used in this 2E form.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager		B. Phone No. (area code & no.) (509) 633-9501
C. Signature		D. Date Signed

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Approved. OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
010	47.00	57.00	29.00	118.00	58.00	34.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
01/01/1975

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes
 ☐ Restaurant or Cafeteria Wastes
 ☐ Noncontact Cooling Water
 ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3)	(or)	(4)
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken (last year)	Source of Estimate (if new discharger)	
Biochemical Oxygen Demand (BOD)	18 lbs/day	30.832 mg/L			1.00		
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00		
Fecal Coliform (if believed present or if sanitary waste is discharged)	30 lbs/day	51.387 mg/L			1.00		
Total Residual Chlorine (if chlorine is used)	0.00 lbs/day	<0.1 mg/L			1.00		
Oil and Grease	310 lbs/day	531.004 mg/L			1.00		
*Chemical oxygen demand (COD)	87 lbs/day	149.024 mg/L			1.00		
*Total organic carbon (TOC)	5.5 lbs/day	9.421 mg/L			1.00		
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00		
Discharge Flow	Value 0.07 MGD				1.00		
pH (give range)	Value 6.51				1.00		
Temperature (Winter)	13.40 °C			°C	1.00		
Temperature (Summer)				°C	0.00		

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
This is all the water leakage into the powerhouse including the turbine pit. There are two 3600 gpm pumps to discharge the water. The pumps run approximately 8.8 hours per day.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is show as 1/1/1975, however actual day in 1975 dicharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1)

Approved. OMB No. 2040-0086.
Approval expires 5-31-92.FORM
2E
NPDES

Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
011	47.00	57.00	38.00	118.00	58.00	31.00	Columbia River

II. DISCHARGE DATE (If a new discharger, the date you expect to begin discharging)
01/01/1975

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☐ Noncontact Cooling Water ☒ Other Nonprocess Wastewater (Identify)

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority (see instructions).

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values (see instructions).

Pollutant or Parameter	(1) Maximum Daily Value (include units)		(2) Average Daily Value (last year) (include units)		(3) Number of Measurements Taken (last year)	(4) Source of Estimate (if new discharger)
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	0.00 lbs/day	<2.4 mg/L			1.00	
Total Suspended Solids (TSS)	0.00 lbs/day	<10 mg/L			1.00	
Fecal Coliform (if believed present or if sanitary waste is discharged)	7 lbs/day	0.081 mg/L			1.00	
Total Residual Chlorine (if chlorine is used)	0.06 lbs/day	0.001 mg/L			1.00	
Oil and Grease	0.00 lbs/day	<4.3 mg/L			1.00	
*Chemical oxygen demand (COD)	0.00 lbs/day	<20 mg/L			1.00	
*Total organic carbon (TOC)	0.00 lbs/day	<1.0 mg/L			1.00	
Ammonia (as N)	0.00 lbs/day	<0.10 mg/L			1.00	
Discharge Flow	Value 10.37 MGD				1.00	
pH (give range)	Value 7.35				1.00	
Temperature (Winter)	17.70 °C			°C	1.00	
Temperature (Summer)				°C	0.00	

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?		<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, briefly describe the frequency of flow and duration.		
Each unit uses a constant cooling water flow rate of approximately 6500 gpm while the unit is in operation. The units typically operate about 57.4% of the time.		
VI. TREATMENT SYSTEM (Describe briefly any treatment system(s) used or to be used)		
N/A		
VII. OTHER INFORMATION (Optional)		
Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.		
Discharge date in Box II is show as 1/1/1975, however actual day in 1975 dicharges began is unknown.		
VIII. CERTIFICATION		
<i>I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.</i>		
A. Name & Official Title Coleman Smith, Grand Coulee Power Manager	B. Phone No. (area code & no.) (509) 633-9501	
C. Signature	D. Date Signed	

VII. Other Information

In addition to the outfalls specifically identified in this permit application, Grand Coulee seeks a permit for the following:

Wicket gates

Wicket gates are on every hydro generator and pump generator but not on pumps. The wicket gates control water flow and indirectly the unit's electrical power output. The wicket gates have traditionally used grease lubricated bushings. Eventually the grease will either end up in the unit water passageway and discharged through the draft tube to the tailbay or onto the headcover where it is captured in the drainage sump skimmer system. The units currently being overhauled will have greaseless bushing; G24, and now G23 and then on to G22.

Line Service Units

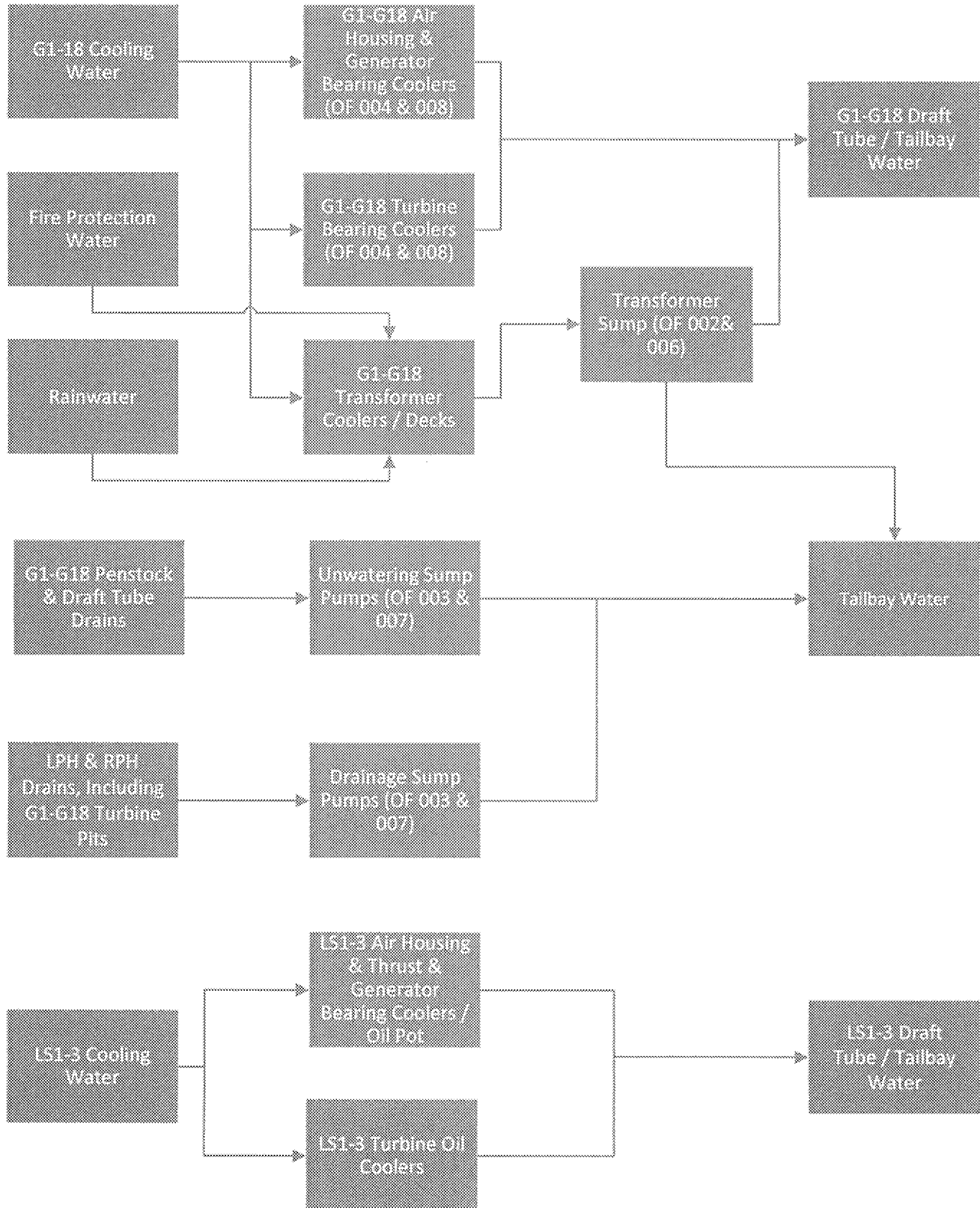
Line service units (local service) are often called station service units. These units are identical in function to the main units, G1-9 except appreciably smaller. We believe the testing on G3 and G8 is representative of LS1-3 and G1-9.

Unwatering Sump

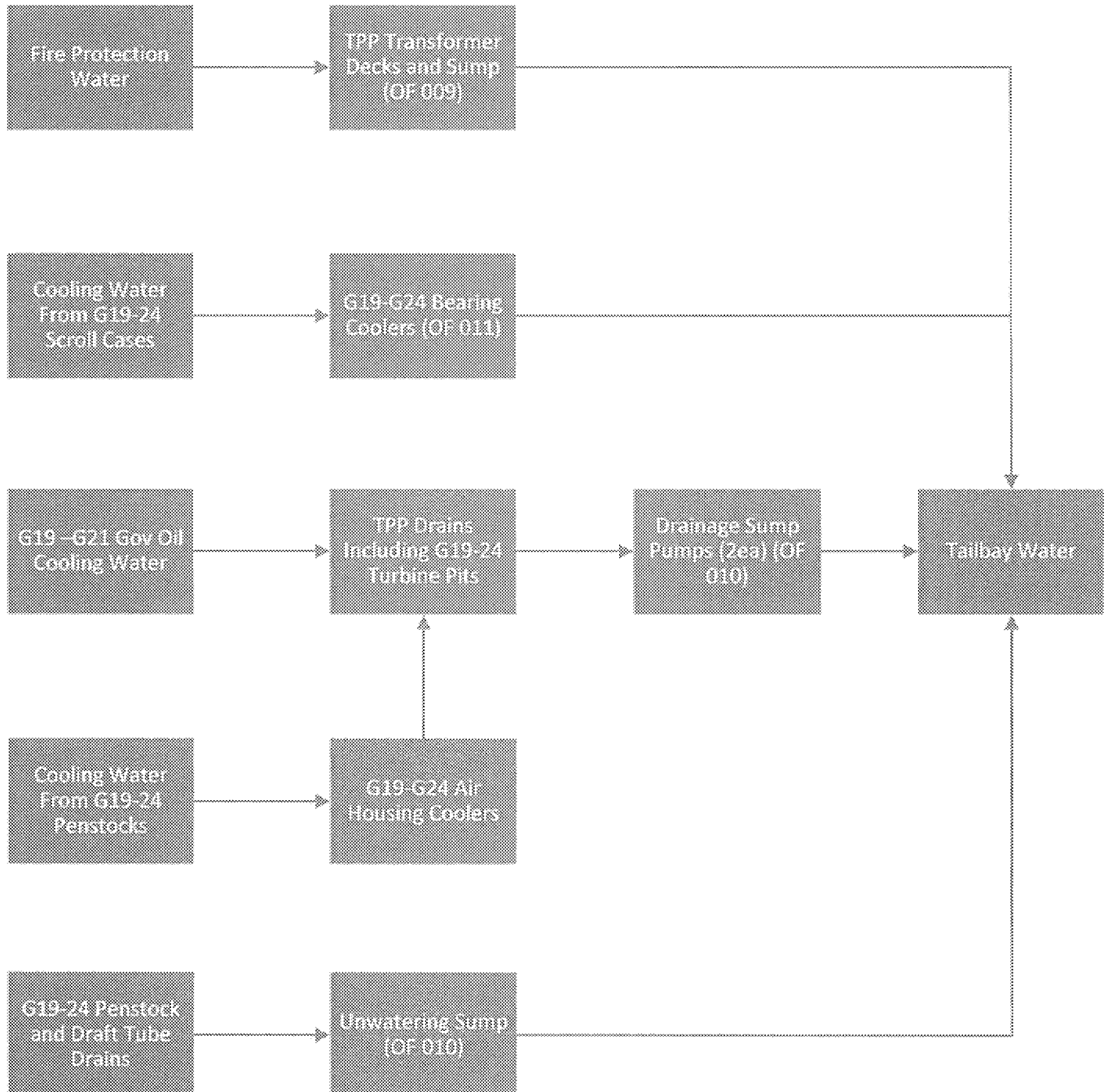
To differentiate we have different types of sumps: drainage (where there might be oil, grease, etc) and unwatering where there is essentially nothing but water. For the unwatering sumps, the hydro unit takes in forebay water, removes the potential energy from it, and discharges the water to tailbay. This is essentially the same water that would go through an outlet tube but we do not remove the energy as electrical power. Since we are not monitoring the water into or out of a hydros unit except at the inlet by G17 and tailbay by G17 discharge, the water in the unwatering sump is the same water. We just place bulkheads so the penstock/draft tube is left full of air.

OUTFALL WATER SOURCE FLOW CHART

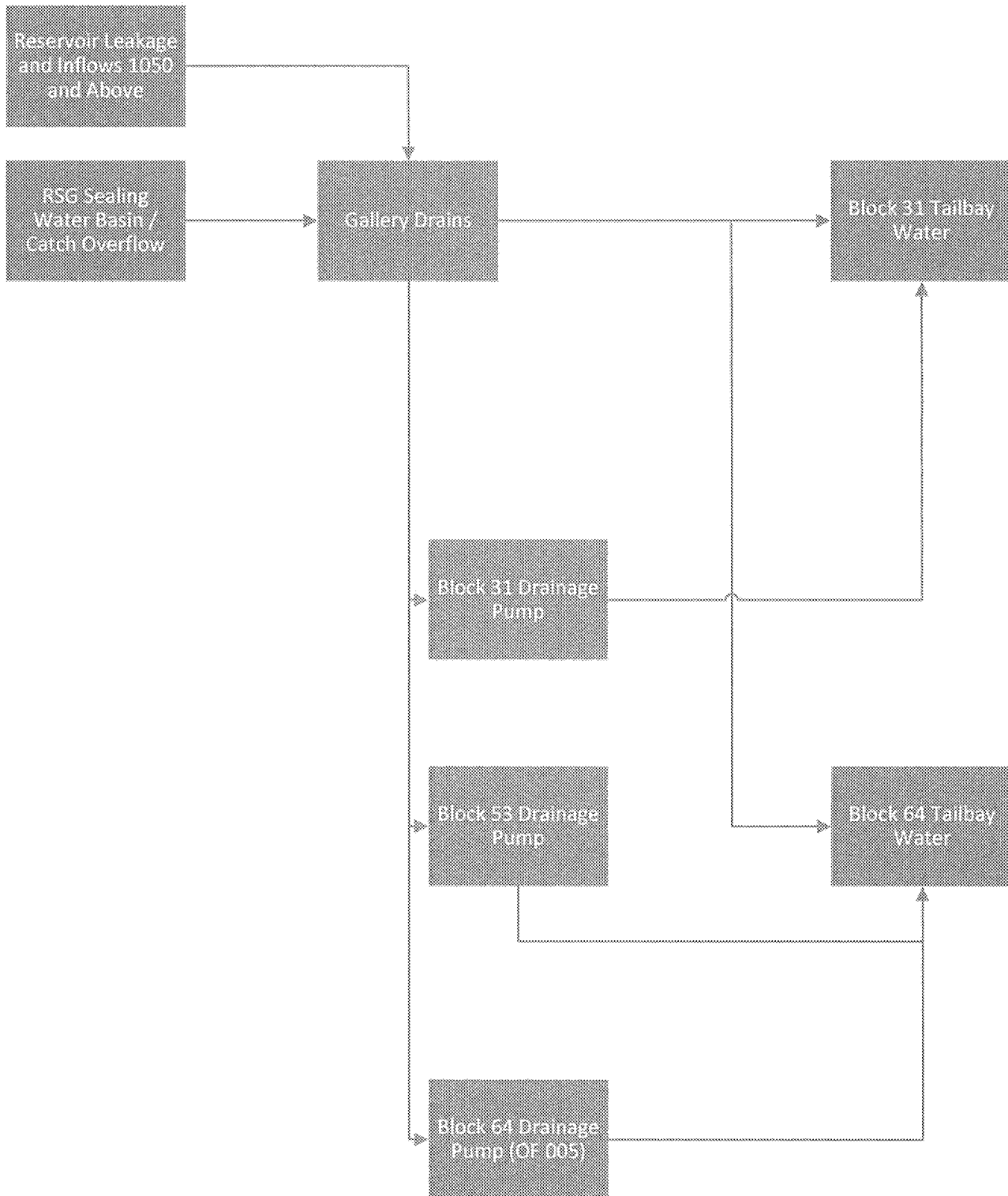
Left & Right Powerhouses (LPH & RPH) (Outflow 002, 003, 004, 006, 007 & 008)



Third Power Plant (TPP) (Outflow 009, 010 & 011)



Main Dam (MD) (Outflow 005)



Pump Generator Plant (PGP) (Outflow 001)



1. Title and Approval Sheet

Quality Assurance Project Plan
NPDES Permit Application

Project Environmental Manager

Date_____

Area Office Power Manager

Date_____

2. Distribution List

At a minimum, the following personnel and analytical laboratory contacts will receive either an electronic or hard copy of the final signed QAPP and any amendments.

Table 1. Project QAPP distribution list.

	Project Affiliation	Organization and Address/Title/Location	Contact Number	Email	No of Copies
Coleman Smith	Power Manager	GCPO Power Manager	509-633-9501	cwsmith@usbr.gov	1
Doug Anderson	Deputy Power Manager	GCPO Deputy Power Manager	509-633-9322	djanderson@usbr.gov	1
Jeff DeWinkler	Environmental Manager	GCPO Environmental	509-633-9321	jdewinkler@usbr.gov	1
Lynn Brougher	Public Affairs Officer	GCPO Public Affairs Officer	509-633-9503	lbrougher@usbr.gov	1
Shawna Castle	NPDES Permit Application Writer	PN-RO- Natural Resource Specialist	208-378-5268	scastle@usbr.gov	1
Drew Keenan	Permit writer	EPA Region 10	206-553-1219	keenan.dru@epamail.epa.gov	1
Randee Arrington	Analytical Laboratory	Test America Laboratory	509-924-9200	randee.arrington@testamericainc.com	1

Acronyms

BMP	Best Management Practice
COC	Chain of Custody
CWA	Clean Water Act
DMP	Data Management Plan
DQI	Data Quality Indicator
DQO	Data Quality Objective
EPA	Environmental Protection Agency
EPS	Environmental Protection Specialist
MDL	Method Detection Limit
NCR	Nonconformance Report
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
QA/QC	Quality Assurance Project Plan
QAC	Quality Assurance Coordinator
QAPP	Quality Assurance Project Plan
QMP	Quality Management Plan
RPD	Relative Percent Difference
SIC	Science Information Catalog
SOP	Standard Operating Procedure
WQI	Water Quality Indicator

3. Table of Contents

- 1. Title and Approval Sheet**
- 2. Distribution List**
Acronyms
- 3. Table of Contents**
- A. PROJECT MANAGMENT**
 - A.1 Problem Definition/Background and Project Objectives**
 - A.2 Project/Task Description and Schedules**
 - A.3 Quality Objective and Criteria for Measurement of Data**
 - A.3.1 Detectability**
 - A.3.2 Precision**
 - A.3.3 Accuracy**
 - A.3.4 Representativeness**
 - A.3.5 Comparability**
 - A.3.6 Completeness**
 - A.4 Training Requirements**
 - A.5 Documentation and Records**
- B. DATA GENERATION AND ACQUISITION**
 - B.1 Sampling Process Design**
 - B.2 Sampling Methods Requirements**
 - B.2.1 Sampling Types**
 - B.2.2 Sampling Containers and Equipment**
 - B.3 Sampling Handling and Custody Requirements**
 - B.3.1 Sampling Event Preparation**
 - B.3.2 Sampling Procedures**
 - B.3.3 Unique Sampling Identification Number**
 - B.3.4 Sample Labels**
 - B.3.5 Chain of Custody Forms**
 - B.3.6 Field Log Book**
 - B.4 Analytical Methods Requirements**
 - B.5 Quality Control Requirements**
 - B.6 Instrument/Equipment Testing, Inspection, and Maintenance**
 - B.7 Instrument Calibration and Frequency Procedures**
 - B.8 Inspection and acceptance Requirements for Supplies**
 - B.9 Data Management**
- C. ASSESSMENT OVERSIGHT**
 - C.1 Assessment Oversight**
 - C.2 Revision to QAPP**
- D. DATA VALIDATION AND USABILITY**
 - D.1 Data Review, Verification and Validation Requirements**
 - D.2 Validation and Verification Methods**
- Appendix A – Pump Generating Plant (PGP)**
- Appendix B – Left Power House (LPH)**
- Appendix C – Right Power House (RPH)**
- Appendix D – Third Power Plant (TPP)**
- Appendix E - Narrative**

A. Project Management

A.1 Problem Definition/Background and Project Objectives

The US Bureau of Reclamation, Grand Coulee Dam is seeking to submit NPDES applications for discharges of industrial process water. Each outfall will need to be identified and sampled in order to submit the permit applications. The primary goal of this Plan is to define procedures that assure the quality and integrity of the collected samples, the representativeness of the results, the precision and accuracy of the analyses, the completeness of the data, and ultimately delivers a defensible permit application.

The plan is organized and presented using the following elements:

- A. Project Management
- B. Data Generation and Acquisition
- C. Assessment and Oversight
- D. Data Validation and Usability

A.2 Project/Task Description and Schedules

Each monitoring plan provided in the appendices includes descriptions of the specific tasks to be implemented to meet the objectives of the QAPP and the associated schedules.

A.3 Quality Objective and Criteria for Measurement of Data

Data Quality Objectives (DQOs) for this program have been established to ensure that the data acquired meets the goals described in each of the monitoring plans - gather enough water quality samples from each outfall to effectively submit the NPDES permit application to EPA and or Department of Ecology (DOE). Methods used for collection and sampling will follow the guidelines from the *22nd Edition Standard Method for Examination of Water and Wastewater*.

A.3.1 Detectability

Detectability is the ability of an analytical method to reliably measure a pollutant concentration above background concentrations. Two components define detectability; the Method Detection Limit (MDL) and the Practical Quantification Limit (PQL), also known as the Reporting Limit (RL).

- The MDL is the minimum value at which the instrument can discern presence of the parameter apart from background noise, without certainty as to the accuracy of the measured value. For field measurements, the manufacturer's listed instrument detection limit (IDL) is used.

- The PQL or RL is the minimum value that can be reported with confidence (usually a multiple of the MDL).

Sample data measured below the MDL will be reported as a non-detected value (ND). A sample measured above the MDL but below the PQL will be reported as the value with an estimated qualification flag. Results reported above the PQL will be reported as reliable, unless otherwise qualified based on the specific sample analyses.

Table 2. Data Quality Objectives for Laboratory Methods

Parameter	Method/Range	Sensitivity (MDL)	PQL	Precision	Accuracy	Calibration Method
BOD	SM 5210 B	NA	2	20%	80-120%	DO meter calibration
COD	EPA 410.4	NA	5	20%	80-120%	Laboratory Blank
TOC	SM 5310 C	0.04	0.1	20%	70-130%	Instrument Calibration
TSS	EPA 160.2	NA	1	NA	NA	Balance Calibration
Ammonia as N	SM 4500 NH3	0.01	0.05	20%	80-120%	Calibration Standards
Oil and Grease	EPA 1664A	0.5	1	18%	79-114%	Balance Calibration

Data Quality Objectives for *Field Instruments*

Parameter	Method/Range	Sensitivity (MDL)	PQL	Precision	Accuracy	Calibration Method
Flow						Flow meter/calculations
Temperature	10 -110°C	0.1°C	NA	±0.5°C	±0.5°C	Instrument Calibration/NIST
pH	-2.0 to 16.0	0.01 units	NA	± 0.01 units	± 0.01 units	Instrument Calibration Standards at pH 4, 7, and 10
Total Cl2						Instrument Calibration
DO						Calibration Standards Instrument Calibration
Coliform/ colilert						Calibration Standards Instrument Calibration
e-coli/ enterolert						Calibration Standards Instrument Calibration

A.3.2 Precision

Precision is the degree of agreement among repeated measurements of the same parameter and gives information about the consistency of methods. It applies to all analytical techniques and field replicates. Precision is expressed in terms of the relative percent difference (RPD) between two measurements. (A and B)

For field measurements, precision is assessed by measuring replicate (paired) samples at the same locations as soon as possible to limit temporal variance in sample results. Field and laboratory precision are measured by collecting blind (to the laboratory) duplicate samples

A.3.3 Accuracy

Accuracy is a measure of confidence that describes how close a measurement is to its "true value." Methods to determine and assess accuracy of field and laboratory measurements include: instrument calibrations, various types of QC checks, and performance audit samples.

Accuracy will be estimated by re-analyzing a sample to which a material of known concentration or amount of pollutant has been added, and results will be expressed as a percent recovery.

A.3.4 Representativeness

Representativeness is the extent to which measurements actually represent the true environmental condition. Representativeness will not be routinely monitored throughout the project, but it is incorporated as data are interpreted. Representativeness is particularly difficult to achieve from one time sampling events. Composite samples will aid in representativeness.

A.3.5 Comparability

Comparability is the degree to which data can be compared directly to similar studies. Standardized sampling techniques, standard analytical methods, and units of reporting with comparable sensitivity will be used to ensure comparability. Analytical methods from the 22nd Edition *Standard Methods for the Examination of Water and Wastewater* and EPA approved methods have been selected. All Project Environmental Protection Specialist (EPSs) members will be trained to follow the standard protocol for each parameter as described in this monitoring plan prior to conducting field work.

A.3.6 Completeness

Completeness is the comparison between the amount of useable data collected and the amount of data identified in the monitoring plan. Completeness is measured as the percentage of total samples collected and analyzed as a whole and for individual parameters and sites as compared to the goals established in the monitoring plan.

A.4. Training Requirements

Training will be conducted by the Environmental Protection Specialist (QA Manager). The QA Manager will ensure that field crews receive training on the following topics:

- Proper recording of data in field log books or data sheets including records of visual observations.
- Sampling protocols.
- Field quality control samples.
- Sample preservation and packaging.
- Hold times.
- Chain of custody completion and procedures.
- Laboratory location.

The training will include the pre-field checks for the proper number and types of bottles, proper handling and maintenance of sample bottles, field sample preservation, proper packing and completion of the chain of custody forms. As appropriate for the type of monitoring being conducted, project EPSs will receive training in the use and calibration of all field equipment necessary.

A.5 Documentation and Records

All data gathered in the field will be recorded on-site in waterproof field log books at the time of sampling. Each monitoring project will have a separate field log book that will be used throughout the duration of the monitoring project. Project EPSs will record instrument calibration data in the field log books, as well as other observations identified in the monitoring plan. Field log books will become part of the record maintained by the QA Manager. Recordings from the field instruments (i.e. temperature and pH) will be transferred to a spreadsheet for the specific monitoring project.

Laboratory results associated with each of the monitoring plans will also be maintained electronically. The laboratory will provide results electronically in PDF format. The QA Manager will ensure that all data have been saved in the appropriate format and with the appropriate file name that links it to the specific monitoring plan for easy retrieval. All the electronic data and field log books will be maintained indefinitely at the project site.

Table 3. Project Documents and Records

Category	Record/Document Type	Location
Site Information	Drawings showing outfall location. Site Photographs	Project Site
Environmental Data	QAPP Calibration(s) Chain of Custody forms	Project Site Project Site Project Site
Data Reporting	Monitoring reports Lab analysis reports	Project Site Contract Laboratory
Data Management	Water Quality data (field and laboratory results) in spreadsheet	Common Project Drives
Quality Assurance	Lab control charts Performance evaluation samples Lab audits Lab QA reports/corrective action reports	Contract Laboratory Contract Laboratory Contract Laboratory Contract Laboratory

B. Data Generation and Acquisition

B.1 Sampling Process Design

The design for each of the monitoring plans including monitoring objectives, locations, parameters and site-specific procedures are described in the following appendices:

- Appendix A Pump Generator Plant (PGP)
- Appendix B Left Power House (LPH)
- Appendix C Right Power House (RPH)
- Appendix D Third Power Plant (TPP)
- Appendix E Narrative Outfall(s)

B.2. Sampling Methods Requirements

B.2.1 Sample Types

Composite samples will be obtained for each outfall for BOD, TSS, COD, TOC, Amm as N, and oil & grease by using an ISCO composite sampler. Grab samples will used to measure pH, temperature, residual chlorine, e-coli, coliform and dissolved oxygen. The details are discussed in each of the monitoring plans in the appendices and the SOP in Appendix F.

B.2.2 Sample containers and Equipment

All sampling equipment and sample containers will be cleaned according to the equipment specifications and/or the laboratory. Bottles supplied by the contract laboratory for sample analysis will be pre-cleaned. These will only be used for samples and will not be pre-rinsed. Sample equipment will be pre-cleaned and cleaned between sample locations as specified in Appendix F.

Samples collected in the field for laboratory analysis will be collected as described in Section B.2, labeled as described below, and will be packed into insulated ice chests with either gel ice (freezable gel packs) or crushed ice that is double-bagged in zip-locked plastic. Samples will be maintained at 4°C ($\pm 2^\circ\text{C}$) until delivered to the laboratory. Temperature in transit will be monitored with a temperature blank provided by the laboratory. A chain of custody form will be completed by the project EPS for each packed ice chest, will be placed in a plastic zip-locked bag, and placed in the ice chest. All samples will be in control of the Project EPS until they are either shipped or delivered to the laboratory.

For samples that will be analyzed by the laboratory, the bottle requirements, sample volumes, preservatives, and holding times are described in Table 4. Because some of the Project sites are remote, special arrangements will need to be made to ensure the laboratory can process the samples within the specified holding times.

Table 4 Laboratory Analyzed Parameters.

Parameter	Container Type	Volume Required	Preservation	Holding Time
BOD	HDPE	1 liter	Cool to $\leq 4^\circ\text{C}$, keep in the dark	48 hours
COD	HDPE	500 mL	H ₂ SO ₄ , Cool to $\leq 4^\circ\text{C}$	28 days
TOC	VOA	2 x 44 mL	HCl, Cool to $\leq 4^\circ\text{C}$	28 days
TSS	HDPE	1 liter	None, Cool to $\leq 4^\circ\text{C}$	7 days
Ammonia as N	HDPE	500 mL	H ₂ SO ₄ , Cool to $\leq 4^\circ\text{C}$	28 days
Oil and grease	AG	1 liter	None, Cool to $\leq 4^\circ\text{C}$	28 days

G= glass, HDPE = high density polyethylene, AG= amber glass, VOA = volatile organic analyte

B.3 Sampling Handling and Custody Requirements

B.3.1 Sampling Event Preparation

The Project EPS shall ensure the following has been completed prior to a sampling event:

- All sample containers, ice chest, freezer packs and chain of custody forms are on site.
- Arrangements have been made with the laboratory to ensure samples will be analyzed within the hold time.
- There are no abnormal events that would prevent a representative sample for the outfall.

- The pH meter has been calibrated.

B.3.2 Sampling Procedures

Each outfall will consist of a composite sample utilizing an ISCO sampler and a grab sample. The 7.5 L gathered at the end of the sampling period will be used to make up the sample to be analyzed. Composite samples will test for BOD, TSS, COD, TOC, Amm as N, and oil & grease. These composite sample will be shipped to Test America in Spokane WA to meet the required holding time.

Temperature, pH, DO and residual chlorine will be from a grab sample.

Sample bottles and devices must be made of inert materials such as glass, Teflon or stainless steel. The ISCO sampler will utilize a HDPE 2.0 gallon container. The container will be held $\leq 4^{\circ}\text{C}$ and in the dark. It shall be closed to the atmosphere.

B.3.3 Unique Sample Identification Numbers

Each sample will receive a unique alpha-numeric sample number. The sample number will include the 3 letter identity code, location identifier, and date and time. The date and time of collection will be recorded in the custody form as well.

B.3.4 Sample Labels

Each sample transported to the laboratory will have a label with the following information on it in indelible ink:

- Sample location
- Date sample collected
- Time sample collected for composite when sample was placed in laboratory container (using 24-hour clock)
- Analyses required
- Preservation (if any)
- Initials of sampler

B.3.5 Chain of Custody Forms

Chain of custody (CoC) forms provided by the laboratory will be used for samples submitted to the laboratory for analysis. The chain of custody form must contain the following information for each sample:

- Type of sample (e.g. water)
- Sample location
- Date and time sample collected (using 24-hour clock)
- Analyses required by analyte name and method number
- Printed name of person collecting sample
- Printed name and signature of person with responsibility for custody of samples until receipt by the laboratory
- Printed name and signature of laboratory person with responsibility for ensuring custody of samples.

The completed chain of custody forms will be scanned and returned to the EPS with the data package.

B.4 Analytical Methods Requirements

Tables 1, 2 and 4 provide the analytical methods, precision and accuracy requirements that apply to all of the Monitoring Plans. The contract laboratory will be provided a copy of this QAPP to ensure that they can meet the data quality objectives for detectability, precision, accuracy, comparability, and completeness prior to being awarded the contract.

B.5 Quality Control Requirements

Quality control activities in the field will include adherence to the QAPP and comprehensive documentation of sample collection information. A rigidly enforced chain of custody program will ensure sample integrity and identification. The chain of custody will document the handling of each sample from the time the sample was collected until its arrival and acceptance at the laboratory.

Matrix spike/matrix spike duplicate samples provide an estimate of laboratory accuracy and precision and will be gathered for the relevant laboratory parameters listed on Table 4.

Table 5 QC Samples to be collected for Test America Lab

Parameter	Equipment rinse blank (1/day)	MS/MSD (1/day)
BOD	X	X
COD	X	X
TOC	X	X
TSS	X	X
Ammonia as N	X	X
Oil and Grease	X	X

B.6 Instrument/Equipment Testing, Inspection, and Maintenance

All equipment is checked to ensure it is properly operating by the Project EPS. Equipment that is not operating properly or cannot be calibrated will not be used in the field. All instrument maintenance, testing and storage will follow the manufacturer's recommendations.

B.7 Instrument Calibration and Frequency Procedures

Instrument calibration will follow the manufacturer's recommendation. Hand-held instruments will be calibrated daily before use. Table 3 list the calibration standards for each type of hand-held device. Water temperature will be calibrated against a NIST-certified thermometer accurate to 0.5°C. A record of equipment calibration and calibration standards will be maintained in the field log books.

B.8 Inspection and Acceptance Requirements for Supplies

Monitoring supplies such as sample bottles, preservatives, sample labels, ice, coolers and chain of custody forms will be provided by the contract laboratory. Calibration solutions and deionized water and other supplies will be maintained by Project EPSs in the field. The Project EPS(s) will be responsible for ordering supplies and ensuring adequate supplies are available for use at the time of sampling.

B.9 Data Management

All data will be reviewed by the QA Manager before data are accepted. Field parameter results will be entered into the same spreadsheet as the laboratory data for each sampling event. Data will be reviewed to determine if apparent issues with the water quality data exist, such as erratic or unexpectedly high or low results.

C. Assessment and Oversight

C.1 Assessment/Oversight

As described in Section B.9, all data are reviewed by the QA Manager before data are submitted to the database. If problems are discovered with data quality or management, it is the responsibility of the QA Manager to address them in a timely manner.

Procedures for inspection, acceptance, calibration and maintenance of equipment and supplies are described in detail in Sections B.6, B.7, and B.8. If problems with data quality are traceable to equipment failure, inspection, calibration and maintenance will be scheduled more frequently.

C.2 Revision to QAPP

The QA Manager will review this QAPP and overall design of the monitoring plan to ensure it is adequate. Minor revisions such as identified project staff, QAPP distribution list and minor editorial changes will be made without formal review.

D. Data Validation and Usability

D.1 Data Review, Verification, and Validation Requirements

The QA Manager will conduct data review and validation as described in Sections B.9 and A.7. Data that are obtained using equipment that has been stored and calibrated correctly and that meets the precision and accuracy data quality objectives will be used. Data that do not meet these objectives will be flagged.

D.2 Validation and Verification Methods

The QA Manager will conduct data validation and verification. They will review data and flag any values that are outside of the expected range for each parameter. The QA Manager will correct errors in data entry and will flag inconsistencies for further review.

The Project EPSs will be responsible for ensuring that maintenance and calibration records show all monitoring equipment to be in compliance with this QAPP (Section B.6, B.7 and B.8)

Appendix A – Pump Generating Plant (PGP)

The identifier PGP sump outfall will have a common header for sampling including PGP cooling water, PGP transformer deck, and PGP sump

Each outfall will consist of a composite sample utilizing an ISCO sampler and a grab sample. The 24 hour composite sample (7.5L) gathered at the end of the sampling period will be used to make up the sample analyzed for COD, TOC, BOD, TSS and oil/grease. Temperature, pH, DO and residual chlorine will be from a grab sample.

Sample bottles and devices must be made of inert materials such as glass, Teflon or stainless steel. The ISCO sampler will utilize a HDPE 2.0 gallon container. The container will be held $\leq 4^{\circ}\text{C}$ and in the dark. It shall be closed to the atmosphere.

Appendix B – Left Power House (LPH)

The identifier LPH will have three (3) outfall locations identified. LPH Xfrm deck, LPH sump and LPH cooling water. The LPH cooling water will be collected from Generator 3

(G-3) and Generator 8 (G-8). These two sample ports are represented "like" samples for LPH Generators 1 thru 9.

Each outfall will consist of a composite sample utilizing an ISCO sampler and a grab sample. The 24 hour composite sample (7.5L) gathered at the end of the sampling period will be used to make up the sample analyzed for COD, TOC, BOD, TSS and oil/grease. Temperature, pH, DO and residual chlorine will be from a grab sample.

Sample bottles and devices must be made of inert materials such as glass, Teflon or stainless steel. The ISCO sampler will utilize a HDPE 2.0 gallon container. The container will be held $\leq 4^{\circ}\text{C}$ and in the dark. It shall be closed to the atmosphere.

Appendix C – Right Power House (RPH)

The identifier RPH will have three (3) outfall locations identified. RPH Xfrm deck, RPH sump and RPH cooling water. The RPH cooling water will be collected from Generator 11 (G-11) and Generator 16 (G-16). These two sample ports are represented "like" samples for RPH Generators 10 thru 18.

Each outfall will consist of a composite sample utilizing an ISCO sampler and a grab sample. . The 24 hour composite sample (7.5L) gathered at the end of the sampling period will be used to make up the sample analyzed for COD, TOC, BOD, TSS and oil/grease. Temperature, pH, DO and residual chlorine will be from a grab sample.

Sample bottles and devices must be made of inert materials such as glass, Teflon or stainless steel. The ISCO sampler will utilize a HDPE 2.0 gallon container. The container will be held $\leq 4^{\circ}\text{C}$ and in the dark. It shall be closed to the atmosphere

Appendix D – Third Power Plant (TPP)

The identifier TPP will have three (3) outfall locations identified. TPP Xfrm deck, TPP sump and TPP cooling water. The TPP cooling water will be collected from Generator 19 (G-19) and Generator 24 (G-24). These two sample ports are represented "like" samples for TPP Generators 19 thru 24.

Each outfall will consist of a composite sample utilizing an ISCO sampler and a grab sample. . The 24 hour composite sample (7.5L) gathered at the end of the sampling period will be used to make up the sample analyzed for COD, TOC, BOD, TSS and oil/grease. Temperature, pH, DO and residual chlorine will be from a grab sample.

Sample bottles and devices must be made of inert materials such as glass, Teflon or stainless steel. The ISCO sampler will utilize a HDPE 2.0 gallon container. The container will be held $\leq 4^{\circ}\text{C}$ and in the dark. It shall be closed to the atmosphere

Appendix E – Narrative Outfall (NO)

The identifier NO will have two (2) outfall locations identified. Fore bay at G-17 trash rack and Tail bay at G-17 outfall. These two sample outfalls are represented "like"

samples for wicket gates, Station Service units, un-watering sumps, coaster gate cylinders and compressor(s).

Each outfall will consist of a composite sample utilizing an ISCO sampler and a grab sample. The 24 hour composite sample (7.5L) gathered at the end of the sampling period will be used to make up the sample analyzed for COD, TOC, BOD, TSS and oil/grease. Temperature, pH, DO and residual chlorine will be from a grab sample.

Sample bottles and devices must be made of inert materials such as glass, Teflon or stainless steel. The ISCO sampler will utilize a HDPE 2.0 gallon container. The container will be held $\leq 4^{\circ}\text{C}$ and in the dark. It shall be closed to the atmosphere

E. Reference

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